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Land and Food

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The following is a transcription of the Second Quarter 1974 issue of Dr. Royal Lee's *Applied Trophology* newsletter, originally published by Standard Process Laboratories.

Land and Food

> *"The art of land doctoring is being practiced with vigor, but the science of land health is yet to be born."*
>
> *—Aldo Leopold, author of A Sandy County Almanac*

Agrochemicals a Hazard

World experience shows that crop yield may be increased by applying chemical fertilizers, but nutritionally the protein value decreases. The modern practice seems to be to fertilize the crops but ignore the land. As a result, we have become a sick nation, with steadily increasing degenerative diseases and a debased and steadily declining nutritional soil value.

Artificial chemical fertilizers interfere with, depress, and finally destroy the biological life of the soil and produce crops containing more water and fewer vitamins and minerals. Also, consumers constantly complain of loss of flavor in most vegetables. No doubt many of you have noticed that potatoes grown with chemical fertilizers have a greenish or yellowish cast, may be scabby, are watery, have little flavor, often much waste, and generally are not of the quality one expects for the present high price demanded. However, today's factory farmers are not too interested in what you think of their produce, as constant advertising and further chemical treatment in processing has created a demand for convenience foods such as potato chips, frozen hash browns, shoestring potatoes, and canned mashed potatoes.

The industrial binge with NPK and other polluting chemical fertilizers has failed and must be replaced with more natural soil-balancing materials. Typically, these present commercial fertilizers in addition to nitrogen, phosphorus, and potassium; do contain marginal amounts of boron, calcium, zinc, or magnesium as insurance against crop loss; or *quantity* rather than concern of *quality* for human nutrition. Nutritional *quality* has been found to be limited to the *lowest available mineral* factor in the soil. Also, the promoters of chemicals for use in agriculture have failed to understand the natural biological system of soil conservation. All their time has been spent in dealing with plant symptoms and ignoring the basic causes of the imbalances that naturally occur in agriculture.

Apart from weather conditions affecting crop production, the main cause of unhealthy produce can be traced back to poor soil. Their advice to the farmer to get bigger and better and produce more for less has been false economic advice that has backfired. Materially it has only been of benefit to the producers of chemical fertilizers, pesticides, fungicides, and other specific farm chemicals but has resulted in a waste of energy, money, and soil for the farmer—and at the expense of health for the product consumer.

It has been predicted that when the chemical companies work off their large inventories of chemical poisons and hormones, particularly DES, sales will be restricted as an environmental hazard or because of the energy crisis.

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However, many farmers must try to reclaim their chemically abused soil. Apparently, it means reverting to farming as carried on in the pre-chemical age. In this respect a quotation from *The Soil Association* (British), in their journal of February 1974, advises:

> "A farmer using compost, green manuring, grazing animals, legumes, deep rooting herbs, sensible rotations and recycling of all waste materials can be sublimely indifferent to these particular industrial giants and their problems. He will also lose no sleep over the fact that something like 80 percent of all pesticides rely in some measure on oil for their manufacture."

As Aldous Huxley has stated: "Technological progress has merely provided us with a more efficient means for going backwards."

To avert a food shortage of good nutritional products our farmers will obviously have to go back to more natural farming methods to resurrect the damaged soil. This must be accomplished soon to prevent further malnutrition and, in some instances, famine and pestilence. Many nations have in the past relied on our reserves of grain and other surplus commodities, but now this surplus has recently been dissipated. Then, too, in recent years our rundown soil has failed to furnish the proper nutrients necessary for good health, which is no doubt partially responsible for our poor rating for life expectancy in the World Health Organization chart.

Nutritional Knowledge?

Surely this is a good reason to revert to growing crops as nature intended and get away from agribusiness or factory farming methods, promoted by our industrial scientists with little regard for the health of the consuming public. These practices have been generally approved by some of our government agencies. As Lee Fryer of Food and Earth Services, Inc., says:

> "The USDA and the FDA have held the view for many years that the nutritive value of crops was determined genetically and were not significantly influenced by fertilizers or farming cultures. It is understandable that they hold this view since it used to be sound, prior to 1940, and public agencies are often slow to change. American farming and the food industry have changed drastically in the past thirty years however and the country can no longer afford atavism either in its public agencies or in simplistic organic and health food movements. It is time to update the technical information and the guides for a sound food supply system."

We also find that the consensus of medical opinion, as exemplified by the AMA, has a tremendous influence on the many government agencies involved and tends to depreciate the opinion of so many people who have experienced the relationship of good nutrition and health. Let us remember that medical opinion is not nutritional information, hence is practically worthless in health protection. Too few of these doctors know that when viable food is properly assimilated by the body it must be considered as part of the foundation of health. Generally, their knowledge of nutrition is comparable to a frog's tail, which, it is said, "he has almost hardly." Presently the doctor's orientation has been more with illness than with health.

Apparently, it is the exorbitant cost of illness and hospitalization as well as the possible loss of freedom of choice and expression of the populace that inspired Congressman Hosmer of California to introduce Resolution HR643 to protect citizens' rights. Senator Proxmire of Wisconsin has introduced a similar bill in the Senate, S-2801. In his introduction of this bill he stated, in part:

> "The Food and Drug Administration and much, but not all, of the orthodox medical profession are actively hostile against the manufacture, sale and distribution of vitamins and minerals as foods or food supplements."

In like vein, James S. Turner, investigator and author of *The Chemical Feast*, charges that the FDA's vitamin regulations "were thrown together in a semipolitical if not an outright political way. It is a political document; it is not a health document,'' he says as he mentions the strong interaction between the FDA personnel and the medical community representative, the AMA. He also said: "Their attitude is that the people are so dumb that they can be seduced into buying anything."

And, as to the often-repeated statement, "There is no need for most people to supplement their diet with vitamins or minerals." We quote Stanley Gershoff, PhD: "Based on my review of the literature, my experience in connection with Hunger USA, and my service on the White House Conference panel, it is now my opinion that serious nutrition problems exist in this country…To me the overriding consideration is that when we have looked for malnutrition, we have found it."

About Food and Farming

It would seem that Congress is on the warpath. Only recently Senator Gaylord Nelson of Wisconsin stated: "The role of the federal government has expanded so greatly in the past three decades that it is now involved in every aspect of our daily lives." He pointed out that U.S. government employees have increased threefold in 35 years, or

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from 900,000 in 1935 to 2.7 million at the end of 1973. He continued: "The great increase in size has fostered, in some agencies, an attitude of callous disregard for the plight of the individual citizen who is caught between unreasonable regulations and the need for human and economic survival."

It is quite apparent that our small farm owners have been caught up in this sometimes unreasonable attitude. In the old days, when the farmer took pride in his produce, a quarter of a mile section of land, or 160 acres, was a good-sized farm. The farmer raised various crops and rotated different crops from year to year. Those near large cities did truck farming and sold their fresh produce to the city dwellers. Now, with suburbanites having taken up much of the good agricultural land, the farms must be further away and consist of a full section (640 acres) or more for mostly one-crop agrochemical farming. The larger acreage demands larger and higher priced machinery (approximately $30,000 for a combine). Tractors and other necessary machinery are equally high. So our small farmer is being continually squeezed between high prices and regulations to the extent that nearly 400,000 farm workers abandoned the land in a one-year period.

Fruit and vegetables now practically all come from a four-state area. The fruit is picked green and the land is forced to produce two or three crops of vegetables a year. These products may or may not contain many of the minerals or vitamins the systems of local residents need or that their local environment previously furnished.

The same is true with feedlot cattle, raised in a few states far away from most localities, so that none of the manure is being used on the farm land that needs it to make humus. In the feed-pen areas untold tons of manure are piling up with no solution evident as to how to get rid of it. Manure is said to contain some lost food value, so now some wise scientist wants to feed the animal wastes back to these animals. The theory is, "The animals are responsible for the mess, let them help take care of it." For years farmers have been recycling this waste back into the soil as nature intended, but factory-farming, money-hungry sponsors knew better and are now caught with a mess on their hands.

Symbolically, like other mothers, "Nature knows best."

Agrochemicals have been found detrimental to mammalian health through disturbance of mineral balance in plants and interference with the catalytic action of metabolism in the body. As for the land, chemicals kill the bacteria and earthworms leave an encrusted soil so hard that water cannot penetrate, hence the heavy runoff of water and flooding of many new areas in the past few years.

The heavy use of farm chemicals is now being used as an excuse for the energy crisis. In reference to this Senator Nelson further stated:

> "Within the last few months it has become amply clear that we are heading into similar crisis in food, fiber, and minerals, if we don't do something about it. In the case of food there is the likelihood of serious worldwide food shortages and widespread starvation."

In a recent report Dr. J.M. Bengoa, chief of the World Health Organization's nutrition unit in Geneva, Switzerland, advises that ten million children in the world are in danger of death from starvation and another ninety million suffer moderate forms of malnutrition. This is a world report and may or may not include our children.

However, it is a well-known fact that our children suffer malnutrition from generally eating the junk foods and convenience concoctions peddled on TV commercials. Seldom do they drink nourishing milk and very rarely water. They are habitually drinking sweetened milk, soda, caffeinated cola drinks, and highly sweetened fruit drinks. As the dentist said, "What a waste of good teeth, and why fluoridate water?"

Mineral Unbalance

As we have stated many times the NPK fertilizers unbalance the soil, furnish unbalanced food, and interfere with proper metabolism. We must agree with Professor Curtis Shears of England that "soil plus fertilization makes the plant and animal, the resultant food makes man."

For instance, it is known that too much potassium (K) on the soil may repress or lock up the available magnesium and that its continued application entirely exhausts the magnesium. This is what happens to cows when they are first turned out to pasture in the spring. They eat too much of the low-magnesium new grass and suffer bloat and muscle spasms. The veterinarians call it grass tetany due to a magnesium deficiency. Also, plants rich in potassium usually are low in calcium and magnesium and may contribute to such degenerative conditions as osteoporosis or periodontal disease in mammals. It may also reduce sodium to an inefficient level. We must not overlook the importance of potassium in human nutrition. For example, it is well known that a "racing heart" is often the result of a potassium deficiency.

High liming increases the need for magnesium, while high phosphorus (P) application reduces its absorption and

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Why Phyllis Quinn's Slow Cook Gourmet Is an SRP Fave also tends to lock up potassium. The nitrogen (N) in this combined chemical formula locks up copper, cobalt, iron, sodium and further aggravates the magnesium deficiency. In nature nitrogen (as protein) is a constituent of all living tissues and is believed to constitute about 4/5 of the atmosphere by volume. It passes into the soil through the aid of bacteria, into plant tissue, or into plant and then animal tissue and back to the soil (through animal wastes), where it is converted by bacteria, in the soil humus, for plant growth or dissipated into gaseous nitrogen.

In all these variations of soil health, more often than not, magnesium seemed to come out on the short end. This surely must contribute to malnutrition, as, aside from higher levels in bone, magnesium is quite evenly distributed in the various tissues and organs of our body. In 1957 soil crop scientists F.E. Bear et al., of Rutgers University, found that food plants from high-yield areas, forced by chemical fertilizers, contain more carbohydrates and are lower in protein and minerals than less luxuriant growth. It has also been proved that calcium salts can only exert their nourishing function to plants in the presence of magnesium, so the absence of either could cause a nonfunction.

Mineral unbalance in soil health is apparently well established. Therefore, its relation to our bodily health is of more important than generally suspected or medically recognized. Magnesium is known to be a catalyst in the formation of hundreds of enzymes. The importance of enzymes in metabolism has been somewhat soft-pedaled due to their inhibitions by processed foods, drugs, and the constant increase of enzyme-inhibiting salts in the atmosphere and in our food and water. All organic minerals salts are not only important in enzyme formation but are also equally important in equilibrium and neuromuscular excitability.

The parathyroid glands, so important in the balance of calcium and phosphorus, rely in part on magnesium as a hormone stimulator, to promote and maintain this balance. Experimental complete removal of the parathyroid glands has resulted in tetany and death. Investigators now conclude that both calcium and magnesium have an individual function to perform in neuromuscular excitability; therefore, either one or both may be deficient in noninfectious tetanus conditions, such as recurrent tonic muscle spasms in children, loss of muscle tone in young adults, vitamin D deficiency, alkalosis, acute muscle spasms of athletes and the aged ("charley horse"), the stiff gait of the alcoholic, muscle twitchings of so-called partial continuous epilepsy, and in some cases of delirium tremens.

Calcium-deficient diets also contribute to convulsions, low weight gain, eyelid bleeding, blood vessel disorders, deformities of the heart and brain, and a high mortality rate, according to a report in the *Tohoku Journal of Experimental Medicine*, 86, pp. 51, 64, 1965. In it, scientists noted that in their own country and in parts of the United States both heart disease and stroke occurred more frequently in soft-water areas but much less in areas where hard water (containing more mineral matter) was used. A contributory factor in this country has been installation and connection of water softeners to the cold-water system instead of only to the hot water system.

Our Need for Minerals

The incidence of strokes is steadily increasing, and the need for calcium is also increasing. Our system demands it in muscle contraction, normal heart beat, blood clotting, and for the general efficiency of the circulatory systems where any breakdown may cause a stroke.

Dr. P. Prioreschi of Canada has reported the important role of potassium in the prevention of cardiac necrosis. It is also of interest that in this investigation he found out that heart attacks could be induced experimentally, by such substances as sodium chloride, polymyxin, aureomycin, and the medical mystery cortisone.

We have previously mentioned the part magnesium plays in fat metabolism in serum cholesterol, its energy-giving process of enzyme function in carbohydrate metabolism, and its role in the process of binding the phosphates in tooth and bone metabolism. Another very important function is recorded by J.K. Aikawa, MD, a professor at Colorado University, in "The Role of Magnesium in Biologic Processes," 1963. He advises that its primary purpose in the cell is the formation of nucleic acids that control the behavior and other properties of living cells. "Ribonucleic acid (RNA) is the genetic substance that synthesizes protein and it is built on cellular magnesium."

In the summary of his frog experiment Dr. Aikawa further stated:

> "In the final analysis, the ultimate explanation of the fact that magnesium alone is operative in such diverse but fundamental cellular processes must be based on the unique atomic structure of this element. Just how it is unique remains to be ascertained."

In normal cells, small bodies (or organelles) known as mitochondria are believed to be the cell's main source of energy. Why? Because they contain the enzymes that "burn" glucose and those which generate available energy in the form of ATP (adenosine triphosphate). This "burning" of sugar cannot occur unless magnesium activates the enzymes. Apparently, magnesium also preserves the integrity of the ribosomes, now known to contain very small particles of nucleic acid molecules that form the physical substrate on which protein synthesis takes place.

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From the studies of H. Baltscheffsky we learn that magnesium is also involved in regulating mitochondrial respiration; the process in which oxygen is taken in and carbon dioxide given off.

The minerals and vitamins in sugar cane juice and in sugar beet juice are lost when refined into white granulated sugar. This unbalances the calcium phosphorus-magnesium ratio and qualifies as a prime cause of dental caries. Children who chew on sugar cane stalks where it is grown are known to have beautiful teeth—which proves the loss of minerals in processing. Instead of becoming a nutritional asset refined sugar becomes a pure carbohydrate that robs the body of stored minerals and vitamins. Again, like the mineral loss in the soil, magnesium seems to be the chief casualty. To date we find magnesium activating at least eighty-four enzymes, thirty-seven of which are involved directly in phosphate transfer.

Phosphorus is also very important for proper use of calcium in the body. In fact, it is so important that the two must exist in a specific proportional ratio of 10 to 4 (2½ times as much calcium as phosphorus). Children do not have a reserve store of calcium, so they must have a constant supply, in addition to enzymes and vitamin D, to take care of their growing bodies until full growth is attained. Very often a child's exclusive cereal diet unbalances the phosphorus-calcium ratio. Food sources of phosphorus are beans, bone, bran, brain, cereals, egg yolk, liver, peas, meat, and peanuts. Generally, though, foods that contain calcium and protein are good sources of phosphorus.

According to the National Institute of Dental Research and Dr. R.S. Harris of the Massachusetts Institute of Technology, fundamentally dental caries is a mineral deficiency disease rather than a bacterial disease. Charles Branson, DDS, states:

> "Although phosphates are not recognized as bactericides, in adequate concentration in saliva, they appear capable of inactivating those acidogenic bacteria effectively."

The disclosure that an adequate level of phosphorus could inactivate pathogenic bacteria may reverse present medical concepts regarding the natural means that the body uses for inactivating other pathological bacteria in the system aside from dental caries.

In the review of phosphorus and phosphates, biochemically, it was determined that phosphorus not only aids in building teeth and bones but has an equally basic role in the construction and regeneration of the vital organs, nerves, brain, arteries, the blood, and every body cell of which phosphorus has been found to be an integral part of the nuclear structure. Apparently, it is also the most potent natural systemic antibiotic known.

In reviewing this article, we find that the intricate structure of plant and animal food is altered by improper fertilization of the soil, the addition of chemicals in processing, the loss of any mineral, protein or vitamin. and the inhibition of enzyme formation, as all interfere with proper metabolism. While very important, apparently iron is only one member of the essential body-building team, for as Dr. G.W. Heard stated, "Our body must have food containing every element found in the earth."

And we add, "In its proper proportion."

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Selene River Press is a publishing company specializing in holistic nutrition education. Our philosophy is rooted in the work of Dr. Royal Lee, who showed that vitamin deficiencies, due to processed foods, are responsible for most degenerative disease. From organic farming to food-based vitamins, from raw milk to fermented foods, Dr. Lee set the course for the field of whole food nutrition.

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